BABYBM.ST25.txt SEQUENCE LISTING

<110> Boutilier, Kim Ouellet, Therese Custers, Jan Hattori, Jiro Miki, Brian Van Lookeren Campagne, Michiel <120> Use of the BNM3 Transcriptional Activator to Control Plant Embryogenesis and Regeneration Processes <130> 270.62USWO <140> US 09/980,364 <141> 2002-04-08 <150> EP 99201745.9 <151> 1999-06-02 <160> 14 <170> PatentIn version 3.0 <210> 1 <211> 2014 <212> DNA <213> Brassica napus <400> 1 gttcatctct cttctttaag accaaaacct ttttctcctc ctcttcatgc atgaacccta 60 actaagttct tcttctttta ccttttacca agaactcgtt agatcactct ctgaactcaa 120 tgaataataa ctggttaggc ttttctctct ctccttatga acaaaatcac catcgtaagg 180

Page 1

acgtctactc	ttccaccacc	acaaccgtcg	tagatgtcgc	cggagagtac	tgttacgatc	240
cgaccgctgc	ctccgatgag	tcttcagcca	tccaaacatc	gtttccttct	ccctttggtg	300
tcgtcgtcga	tgctttcacc	agagacaaca	atagtcactc	ccgagattgg	gacatcaatg	360
gttgtgcatg	caataacatc	cacaacgatg	agcaagatgg	accaaagctt	gagaatttcc	420
ttggccgcac	caccacgatt	tacaacacca	acgaaaacgt	tggagatgga	agtggaagtg	480
gctgttatgg	aggaggagac	ggtggtggtg	gctcactagg	actttcgatg	ataaagacat	540
ggctgagaaa	tcaacccgtg	gataatgttg	ataatcaaga	aaatggcaat	gctgcaaaag	600
gcctgtccct	ctcaatgaac	tcatctactt	cttgtgataa	caacaacgac	agcaataaca	660
acgttgttgc	ccaagggaag	actattgatg	atagcgttga	agctacaccg	aagaaaacta	720
ttgagagttt	tggacagagg	acgtctatat	accgcggtgt	tacaaggcat	cggtggacag	780
gaagatatga	ggcacattta	tgggataata	gttgtaaaag	agaaggccaa	acgcgcaaag	840
gaagacaagt	ttatttggga	ggttatgaca	aagaagaaaa	agcagctagg	gcttatgatt	900
tagccgcact	caagtattgg	ggaaccacca	ctactactaa	cttccccatg	agcgaatatg	960
aaaaagaggt	agaagagatg	aagcacatga	caaggcaaga	gtatgttgcc	tcactgcgca	1020
ggaaaagtag	tggtttctct	cgtggtgcat	cgatttatcg	tggagtaaca	agacatcacc	1080
aacatggaag	atggcaagct	aggataggaa	gagtcgccgg	taacaaagac	ctctacttgg	1140
gaacttttgg	cacacaagaa	gaagctgcag	aggcatacga	cattgcggcc	atcaaattca	1200
gaggattaac	cgcagtgact	aacttcgaca	tgaacagata	caacgttaaa	gcaatcctcg	1260
aaagccctag	tcttcctatt	ggtagcgccg	caaaacgtct	caaggaggct	aaccgtccgg	1320
ttccaagtat	gatgatgatc	agtaataacg	tttcagagag	tgagaatagt	gctagcggtt	1380
ggcaaaacgc	tgcggttcag	catcatcagg	gagtagattt	gagcttattg	caccaacatc	1440
aagagaggta	caatggttat	tattacaatg	gaggaaactt	gtcttcggag	agtgctaggg	1500
cttgtttcaa	acaagaggat	gatcaacacc	atttcttgag	caacacgcag	agcctcatga	1560
ctaatatcga	tcatcaaagt	tctgtttcgg	atgattcggt	tactgtttgt	ggaaatgttg	1620
ttggttatgg	tggttatcaa	ggatttgcag	ccccggttaa	ctgcgatgcc	tacgctgcta	1680
gtgagtttga	ttataacgca	agaaaccatt	attactttgc	tcagcagcag	cagacccagc	1740
agtcgccagg	tggagatttt	cccgcggcaa	tgacgaataa	tgttggctct	aatatgtatt	1800
accatgggga	aggtggtgga	gaagttgctc	caacatttac	agtttggaac	gacaattaga	1860
aaaaatagtt	aaagatcttt	agttatatgc	gttgttgtgt	gctggtgaac	agtgtgatac	1920
tttgattatg	ttttttttt	tctcttttc	tttttcttgg	ttaatttctt	aagacttatt	1980
tttagtttcc	attagttgga	taaattttca	gact			2014

<210> 2

<211> 579

<212> PRT

<213> Brassica napus

<400> 2

Met Asn Asn Asn Trp Leu Gly Phe Ser Leu Ser Pro Tyr Glu Gln Asn 1 5 10 15 His His Arg Lys Asp Val Tyr Ser Ser Thr Thr Thr Thr Val Val Asp 20 25 30 Val Ala Gly Glu Tyr Cys Tyr Asp Pro Thr Ala Ala Ser Asp Glu Ser 35 40 45 Ser Ala Ile Gln Thr Ser Phe Pro Ser Pro Phe Gly Val Val Asp 50 55 60 Ala Phe Thr Arg Asp Asn Asn Ser His Ser Arg Asp Trp Asp Ile Asn 65 70 75 80 Gly Cys Ala Cys Asn Asn Ile His Asn Asp Glu Gln Asp Gly Pro Lys 85 90 95 Leu Glu Asn Phe Leu Gly Arg Thr Thr Thr Ile Tyr Asn Thr Asn Glu 100 105 110 Asn Val Gly Asp Gly Ser Gly Ser Gly Cys Tyr Gly Gly Gly Asp Gly 115 120 125 Gly Gly Gly Ser Leu Gly Leu Ser Met Ile Lys Thr Trp Leu Arg Asn 130 135 140 Gln Pro Val Asp Asn Val Asp Asn Gln Glu Asn Gly Asn Ala Ala Lys 145 150 155 160 Gly Leu Ser Leu Ser Met Asn Ser Ser Thr Ser Cys Asp Asn Asn 165 170 175Asp Ser Asn Asn Asn Val Val Ala Gln Gly Lys Thr Ile Asp Asp Ser 180 185 190 Val Glu Ala Thr Pro Lys Lys Thr Ile Glu Ser Phe Gly Gln Arg Thr 195 200 205 Ser Ile Tyr Arg Gly Val Thr Arg His Arg Trp Thr Gly Arg Tyr Glu 210 215 220 Ala His Leu Trp Asp Asn Ser Cys Lys Arg Glu Gly Gln Thr Arg Lys 225 230 235 240 Gly Arg Gln Val Tyr Leu Gly Gly Tyr Asp Lys Glu Glu Lys Ala Ala 245 250 255 Arg Ala Tyr Asp Leu Ala Ala Leu Lys Tyr Trp Gly Thr Thr Thr 260 265 270 Page 3

Thr Asn Phe Pro Met Ser Glu Tyr Glu Lys Glu Val Glu Glu Met Lys 275 280 285 His Met Thr Arg Gln Glu Tyr Val Ala Ser Leu Arg Arg Lys Ser Ser 290 295 300 Gly Phe Ser Arg Gly Ala Ser Ile Tyr Arg Gly Val Thr Arg His His 305 310 315 320Gln His Gly Arg Trp Gln Ala Arg Ile Gly Arg Val Ala Gly Asn Lys 325 330 335 Asp Leu Tyr Leu Gly Thr Phe Gly Thr Gln Glu Glu Ala Ala Glu Ala 340 345 350 Tyr Asp Ile Ala Ala Ile Lys Phe Arg Gly Leu Thr Ala Val Thr Asn 355 360 365 Phe Asp Met Asn Arg Tyr Asn Val Lys Ala Ile Leu Glu Ser Pro Ser 370 375 380 Leu Pro Ile Gly Ser Ala Ala Lys Arg Leu Lys Glu Ala Asn Arg Pro 385 390 395 400 Val Pro Ser Met Met Ile Ser Asn Asn Val Ser Glu Ser Glu Asn 405 410 415 Ser Ala Ser Gly Trp Gln Asn Ala Ala Val Gln His His Gln Gly Val 420 425 430 Asp Leu Ser Leu Leu His Gln His Gln Glu Arg Tyr Asn Gly Tyr Tyr 435 440 445 Tyr Asn Gly Gly Asn Leu Ser Ser Glu Ser Ala Arg Ala Cys Phe Lys 450 455 460 Gln Glu Asp Asp Gln His His Phe Leu Ser Asn Thr Gln Ser Leu Met 465 470 475 480 Thr Asn Ile Asp His Gln Ser Ser Val Ser Asp Asp Ser Val Thr Val 485 490 495 Cys Gly Asn Val Val Gly Tyr Gly Gly Tyr Gln Gly Phe Ala Ala Pro 500 505 510 Val Asn Cys Asp Ala Tyr Ala Ala Ser Glu Phe Asp Tyr Asn Ala Arg 515 520 525 Asn His Tyr Tyr Phe Ala Gln Gln Gln Gln Gln Gln Ser Pro Gly 530 540 Gly Asp Phe Pro Ala Ala Met Thr Asn Asn Val Gly Ser Asn Met Tyr 545 550 555 560 Tyr His Gly Glu Gly Gly Glu Val Ala Pro Thr Phe Thr Val Trp
565 570 575 Asn Asp Asn

<210> 3

<211> 2011

<212> DNA

<213> Brassica napus

<400> 3 ttcttctttt	accttttacc	aagaactcgt	tagatcattt	tctgaactcg	atgaataata	60
actggttagg	cttttctctc	tctccttatg	aacaaaatca	ccatcgtaag	gacgtctgct	120
cttccaccac	cacaaccgcc	gtagatgtcg	ccggagagta	ctcttacgat	ccgaccgctg	180
cctccgatga	gtcttcagcc	atccaaacat	cgtttccttc	tccctttggt	gtcgtcctcg	240
atgctttcac	cagagacaac	aatagtcact	cccgagattg	ggacatcaat	ggtagtgcat	300
gtaataacat	ccacaatgat	gagcaagatg	gaccaaaact	tgagaatttc	cttggccgca	360
ccaccacgat	ttacaacacc	aacgaaaacg	ttggagatat	cgatggaagt	gggtgttatg	420
gaggaggaga	cggtggtggt	ggctcactag	gactttcgat	gataaagaca	tggctgagaa	480
atcaacccgt	ggataatgtt	gataatcaag	aaaatggcaa	tggtgcaaaa	ggcctgtccc	540
tctcaatgaa	ctcatctact	tcttgtgata	acaacaacta	cagcagtaac	aaccttgttg	600
cccaagggaa	gactattgat	gatagcgttg	aagctacacc	gaagaaaact	attgagagtt	660
ttggacagag	gacgtctata	taccgcggtg	ttacaaggca	tcggtggaca	ggaagatatg	720
aggcacattt	atgggataat	agttgtaaac	gagaaggcca	aacgcgcaaa	ggaagacaag	780
tttatttggg	aggttatgac	aaagaagaaa	aagcagctag	ggcttatgat	ttagccgcac	840
tcaagtattg	gggaaccacc	actactacta	acttccccat	gagcgaatat	gagaaagaga	900
tagaagagat	gaagcacatg	acaaggcaag	agtatgttgc	ctcacttcgc	aggaaaagta	960
gtggtttctc	tcgtggtgca	tcgatttatc	gtggagtaac	aagacatcac	caacatggaa	1020
gatggcaagc	taggatagga	agagtcgccg	gtaacaaaga	cctctacttg	ggaacttttg	1080
gcacacaaga	agaagctgca	gaggcatacg	acattgcggc	catcaaattc	agaggattaa	1140
ccgcagtgac	taacttcgac	atgaacagat	acaacgttaa	agcaatcctc	gaaagcccta	1200
gtcttcctat	tggtagcgcc	gcaaaacgtc	tcaaggaggc	taaccgtccg	gttccaagta	1260
tgatgatgat	cagtaataac	gtttcagaga	gtgagaataa	tgctagcggt	tggcaaaacg	1320
ctgcggttca	gcatcatcag	ggagtagatt	tgagcttatt	gcagcaacat	caagagaggt	1380
acaatggtta	ttattacaat	ggaggaaact	tgtcttcgga	gagtgctagg	gcttgtttca	1440
aacaagagga	tgatcaacac	catttcttga	gcaacacgca	gagcctcatg	actaatatcg	1500
atcatcaaag	ttctgtttca	gatgattcgg	ttactgtttg	tggaaatgtt	gttggttatg	1560
gtggttatca	aggatttgca	gccccggtta	actgcgatgc	ctacgctgct	agtgagtttg	1620

actataacgc	aagaaaccat	tattactttg	ctcagcagca	gcagacccag	cattcgccag	1680
gaggagattt	tcccgcggca	atgacgaata	atgttggctc	taatatgtat	taccatgggg	1740
aaggtggtgg	agaagttgct	ccaacattta	cagtttggaa	cgacaattag	aaataatagt	1800
taaagatctt	tagttatatg	cgttgttgtg	tggtgttgaa	cagtttgata	ctttgattat	1860
gtttttttt	ctcttttca	ttttgttggt	tagtttctta	agacttattt	tttgtttcca	1920
ttagttggat	aaattttcgg	acttaagggt	cacttctgtt	ctgacttctg	tctaatacag	1980
aaaagttttc	ataaaaaaaa	aaaaaaaaa	a			2011

<210> 4

<211> 579

<212> PRT

<213> Brassica napus

<400> 4

 Met
 Asn
 Asn
 Asn
 Trp
 Leu
 Gly
 Phe
 Ser
 Leu
 Ser
 Pro
 Tyr
 Glu
 Gln
 Asn

 His
 His
 Arg
 Lys
 Asp
 Val
 Cys
 Ser
 Ser
 Thr
 Thr
 Thr
 Thr
 Ala
 Val
 Asp
 Val
 Asp
 Asp
 Asp
 Pro
 Thr
 Ala
 Ala
 Asp
 Asp
 Glu
 Ser
 Pro
 Pro
 Phe
 Gly
 Val
 Val
 Leu
 Asp
 Asp
 Asp
 Pro
 Pro
 Phe
 Gly
 Val
 Val
 Leu
 Asp
 Asp
 Asp
 Pro
 Pro
 Phe
 Gly
 Val
 Val
 Leu
 Asp
 Asp
 Asp
 Pro
 Pro
 Phe
 Gly
 Val
 Val
 Leu
 Asp
 Asp
 Asp
 Asp
 Asp
 Ill
 Asp
 Asp
 Ill
 Asp
 Asp
 Ill
 Asp
 Asp
 Ill

BABYBM.ST25.txt
Val Glu Ala Thr Pro Lys Lys Thr Ile Glu Ser Phe Gly Gln Arg Thr
195 200 205 Ser Ile Tyr Arg Gly Val Thr Arg His Arg Trp Thr Gly Arg Tyr Glu 210 215 220 Ala His Leu Trp Asp Asn Ser Cys Lys Arg Glu Gly Gln Thr Arg Lys 235 230 235 Gly Arg Gln Val Tyr Leu Gly Gly Tyr Asp Lys Glu Glu Lys Ala Ala 245 250 255 Arg Ala Tyr Asp Leu Ala Ala Leu Lys Tyr Trp Gly Thr Thr Thr 260 265 270 Thr Asn Phe Pro Met Ser Glu Tyr Glu Lys Glu Ile Glu Glu Met Lys 275 280 285 His Met Thr Arg Gln Glu Tyr Val Ala Ser Leu Arg Arg Lys Ser Ser 290 295 300 Gly Phe Ser Arg Gly Ala Ser Ile Tyr Arg Gly Val Thr Arg His His 305 310 315 320 Gln His Gly Arg Trp Gln Ala Arg Ile Gly Arg Val Ala Gly Asn Lys 325 330 335 Asp Leu Tyr Leu Gly Thr Phe Gly Thr Gln Glu Glu Ala Ala Glu Ala 340 345 350 Tyr Asp Ile Ala Ala Ile Lys Phe Arg Gly Leu Thr Ala Val Thr Asn 355 360 365 Phe Asp Met Asn Arg Tyr Asn Val Lys Ala Ile Leu Glu Ser Pro Ser 370 380 Pro Ile Gly Ser Ala Ala Lys Arg Leu Lys Glu Ala Asn Arg Pro 390 395 400 Pro Ser Met Met Ile Ser Asn Asn Val Ser Glu Ser Glu Asn 405 410 415 Asn Ala Ser Gly Trp Gln Asn Ala Ala Val Gln His His Gln Gly Val 420 425 430 Asp Leu Ser Leu Leu Gln Gln His Gln Glu Arg Tyr Asn Gly Tyr Tyr 435 440 445 Tyr Asn Gly Gly Asn Leu Ser Ser Glu Ser Ala Arg Ala Cys Phe Lys 450 455 460 Gln Glu Asp Asp Gln His His Phe Leu Ser Asn Thr Gln Ser Leu Met 465 470 475 480 Thr Asn Ile Asp His Gln Ser Ser Val Ser Asp Asp Ser Val Thr Val 485 490 495 Cys Gly Asn Val Val Gly Tyr Gly Gly Tyr Gln Gly Phe Ala Ala Pro 500 505 510

Val Asn Cys Asp Ala Tyr Ala Ala Ser Glu Phe Asp Tyr Asn Ala Arg 515 520 525

BABYBM.ST25.txt
Asn His Tyr Tyr Phe Ala Gln Gln Gln Gln Thr Gln Gln Ser Pro Gly
530 535 540

Gly Asp Phe Pro Ala Ala Met Thr Asn Asn Val Gly Ser Asn Met Tyr 545 550 555 560

Tyr His Gly Glu Gly Gly Glu Val Ala Pro Thr Phe Thr Val Trp 565 570 575

Asn Asp Asn

<210> 5

<211> 4873

<212> DNA

<213> Brassica napus

<220>

<221> Intron

<222> (1846)..(2298)

<220>

<221> Intron

<222> (2720)..(2952)

<220>

<221> Intron

<222> (3036)..(3160)

<220>

<221> Intron

<222> (3170)..(3314)

<220>

<221> Intron

<222> (3404)..(3553)

<220>

<221>	Intron						
<222>	(3628)((3797)					
<220>							
<221>	Intron						
<222>	(3849)((3961)					
<220>							
<221>	Intron						
<222>	(4039)((4148)					
<220>							
<221>	misc_feat	ure					
<222>	(1620)(1622)					
<223>	start cod	on					
<220>							
<221>	misc_feat	ure					
<222>	(4856)(4858)					
<223>	stop codo	n					
<400> atctctc	5 ccac cgatt	cgtta ccc	agtgctt	gaaaatatga	tgactacgaa	tcaattaaat	60
ggagaag	ctc cactg	cttgt gta	ggtggaa	gctcaagcaa	caaccggaaa	cctcggcgtt	120
				tttccgccgc			180
gaaacco	ctca aatag	gttag cca [.]	taaaaca	gtgaattagt	atgatttaag	agataagaag	240
agaagat	gag ttcaa	gaaaa gaa	atactca	catctattta	tactgtttac	acaccgcctt	300
tcagato	taa gcaaa	gcatt gaa	gatgaat	cgtggaggag	agttaatagg	atttaacaca	360
aagccat	taa ccaaa	ccgtt gca	ggtcggg	agacgaaccg	caaaagtcac	gcctagccgt	420
cgcacga	aga ggagc	gatga att	tcgtttt	ctcgctgcag	tcgtattagg	gatagacgga	480
gctcatt	atc gttgg	gccgg aaa	cacttct	aatctcacag	cccatgaaca	cactaaagaa	540
cgaaaco	gaa aatgt	ttgaa gtt [.]	taatgaa	acgtgcggtt Page		acacatgtca	600

ttacgatatg	aaatgattta	tctacgtgga	tcataggtgt	ctctctaagg	agagagcaaa	660
cctatacttt	atataaatag	atttgtatca	ttctaagagg	tgtttaagat	ttttgcataa	720
atattaaaaa	aaaatacaaa	tttttatgta	attagttttg	gttàcataaa	ataacattaa	780
ataaaattaa	ttcaaccaat	aaaaaaatac	ggtattttat	aattggtcaa	aaataaaaat	840
aaaacattaa	atttcaccta	gaattacgag	aatgtcactt	attttgaaac	aaaatcaaaa	900
tctttaaaca	tcaattaaac	tgatacggat	ggagtatata	tctttacaga	gaacatatat	960
atatgttttt	cttgtaagcg	tccatctctt	cttagtcatg	tagttcaaat	accagctgca	1020
gtaaaaccat	gaatatttga	atttgttgta	aaatattcga	agcgactact	gcacgtttgg	1080
aagcaaaacg	ccaaacgcaa	tcgctcgctc	ggtcataggg	tcacacatac	acatgtgact	1140
agcattatgg	gtcttaattc	aacagcgagt	gattttggga	tttattatta	gttctcgtgt	1200
tactctcact	ttaacacaaa	gtcactaacc	ttatttacac	atgaagagag	gtttgaaagg	1260
gcttttgact	gattaattat	aatgtattaa	accaaactag	aattaagaga	ttaggcattg	1320
aattacatta	ccaccaccac	ccaccattca	aaccgaccaa	tacatctcca	cagttttcaa	1380
gtaaaacaac	tttttttgt	tgttccttcg	gaatttaaat	aaatattcgt	ttatataaat	1440
gcgcatgata	tgacgcctcg	gaagaaatga	aacattatat	ctttgacttt	tcttctccta	1500
gttcatctct	cttctttaag	accaaaacct	ttttctcctc	ctcttcatgc	atgaacccta	1560
actaagttct	tcttcttta	ccttttacca	agaactcgtt	agatcactct	ctgaactcaa	1620
tgaataataa	ctggttaggc	ttttctctct	ctccttatga	acaaaatcac	catcgtaagg	1680
acgtctactc	ttccaccacc	acaaccgtcg	tagatgtcgc	cggagagtac	tgttacgatc	1740
cgaccgctgc	ctccgatgag	tcttcagcca	tccaaacatc	gtttccttct	ccctttggtg	1800
tcgtcgtcga	tgctttcacc	agagacaaca	atagtcactc	ccgaggttat	tgttttagaa	1860
ctacttgttt	ttttttgatt	tgtttatttg	tttagtttcc	tcttcttcca	atgcgtagaa	1920
caaagaccaa	tacacacgca	cgcatactag	ccctatttt	tccttgggct	tatttatcga	1980
tttcatttat	tttgagaata	tcaatgtgtg	gggtttgatg	tttgtttgca	tatagtaata	2040
ctaaaacata	tgccagttat	acatagattt	tttttaaaga	tatacatgga	tatgaaatga	2100
aatttgacat	ttcctccttt	attcaatatc	ataatatgat	cacatacatg	tgtacctttt	2160
gatttgtata	tttgtttctt	acagttgaag	gagagaataa	ccaaataccc	atttgtatat	2220
tatagatcgg	tgatgaaaag	taaatttaac	aaattatgat	aatataggcc	attaatcttt	2280
gattttttt	ctttatagat	tgggacatca	atggttgtgc	atgcaataac	atccacaacg	2340
atgagcaaga	tggaccaaag	cttgagaatt	tccttggccg	caccaccacg	atttacaaca	2400
ccaacgaaaa	cgttggagat	ggaagtggaa	gtggctgtta	tggaggagga	gacggtggtg	2460

ataactcact	aggactttcg	atgataaaga	BABYBM.ST catggctgag		ataaata	2520
		aatgctgcaa				2580
		gacagcaata				2640
		ccgaagaaaa				2700
-		tgcccttcat				2760
		aaagtctggg				2820
		atatagtatc				2880
		tatatataca				2940
		ggacaggaag				3000
		gcaaaggaag				3060
					_	3120
_		tttactttca				3180
		cctggtggtt				3240
		gtgatgggta			_	3300
		atataatcaa				
		atgacaaaga				3360
		ccaccactac			_	3420
gtacaagatt	tcataactta	gaaccaattt	tattcttttt	ttataagatg	ctattatctt	3480
attattaatt	gccatgttta	tatcgttaca	tttattacaa	taaaaagtac	ttttggtttg	3540
atataatatg	tagatgagcg	aatatgaaaa	agaggtagaa	gagatgaagc	acatgacaag	3600
gcaagagtat	gttgcctcac	tgcgcaggta	tataatggaa	cttctgatat	tattgcatat	3660
ggcatctatt	attatacatg	tatattagta	ttttatatat	agaacccatc	acgctcacgt	3720
ttatatttaa	aaatatgtcc	gtattcacgt	cagattatca	gcatacacct	atatataata	3780
gacattaaaa	tatgcaggaa	aagtagtggt	ttctctcgtg	gtgcatcgat	ttatcgtgga	3840
gtaacaaggt	attcatacag	agagaacgaa	tcctattttg	ttacgtacat	atatatataa	3900
aaatataatt	ataagatatc	acattttata	ttatgaatat	ttcttctaat	gggtccaaaa	3960
gacatcacca	acatggaaga	tggcaagcta	ggataggaag	agtcgccggt	aacaaagacc	4020
tctacttggg	aacttttggt	acgtttagtc	ttctcttact	aaacttcaca	atcaaatcta	4080
taacaaaaga	tatcaactaa	aaactacaac	atatatctaa	gtaagctgta	catatattat	4140
atatgaaggc	acacaagaag	aagctgcaga	ggcatacgac	attgcggcca	tcaaattcag	4200
aggattaacc	gcagtgacta	acttcgacat	gaacagatac	aacgttaaag	caatcctcga	4260
aagccctagt	cttcctattg	gtagcgccgc	aaaacgtctc	aaggaggcta	accgtccggt	4320
tccaagtatg	atgatgatca	gtaataacgt	ttcagagagt Page		ctagcggttg	4380

gcaaaacgct	gcggttcagc	atcatcaggg	agtagatttg	agcttattgc	accaacatca	4440
agagaggtac	aatggttatt	attacaatgg	aggaaacttg	tcttcggaga	gtgctagggc	4500
ttgtttcaaa	caagaggatg	atcaacacca	tttcttgagc	aacacgcaga	gcctcatgac	4560
taatatcgat	catcaaagtt	ctgtttcgga	tgattcggtt	actgtttgtg	gaaatgttgt	4620
tggttatggt	ggttatcaag	gatttgcagc	cccggttaac	tgcgatgcct	acgctgctag	4680
tgagtttgat	tataacgcaa	gaaaccatta	ttactttgct	cagcagcagc	agacccagca	4740
gtcgccaggt	ggagattttc	ccgcggcaat	gacgaataat	gttggctcta	atatgtatta	4800
ccatggggaa	ggtggtggag	aagttgctcc	aacatttaca	gtttggaacg	acaattagaa	4860
aaaatagtta	aag					4873

<210> 6

<211> 5151

<212> DNA

<213> Arabidopsis thaliana

<220>

<221> Intron

<222> (2249)..(2578)

<220>

<221> Intron

<222> (2994)..(3220)

<220>

<221> Intron

<222> (3304)..(3420)

<220>

<221> Intron

<222> (3429)..(3521)

<220>

<221>	Intron				
<222>	(3611)(3770)				
<220>					
<221>	Intron				
<222>	(3845)(3969)				
<220>					
<221>	Intron				
<222>	(4020)(4151)				
<220>					
<221>	Intron				
<222>	(4229)(4310)				
<220>					
<221>	misc_feature				
<222>	(2026)(2028)				
<223>	start codon				
<220>					
<221>	misc_feature				
<222>	(5033)(5035)				
<223>	stop codon				
<400>	6	****		 ****	60
	actc atccatctga				
	cttt tctttctttt				120
33	tcac acgctcttgt				180
_	tgga atctcaatct				240
_	tttt tgtatttaca				300
tgtttt	ttac acaaaacttt	gattataaaa	cctcagccgt Page	ttagaattta	360

aacgcatgca	atgaagtcat	tcgtgaatga	tatataaata	gtttgtttat	ttgttatata	420
tcgtcccgcc	ccggatcaaa	acctaaagta	agtgaataaa	attttctttt	gtagagataa	480
gaaaatttgt	accgcgtatc	gaaaatgtaa	aacctatttt	aatttctaga	tctactaatt	540
gggtttgagg	tattgaaata	attgggtacc	aaaggtttgg	ggtactatat	ataaaaagca	600
gataagaaca	aattgttagg	aaaaaataat	atgattttgt	aggtaccgag	gcaattctag	660
aacgtgtgtt	ggtggtgtgt	tagatattgc	aggcataata	atggaagaag	tgaaattata	720
ttacaattaa	ataggaagac	gagaatccat	tgaatcatat	cttaccagtc	caaacttttt	780
ttaagtatat	aaatctttga	aagagtataa	acccatgcac	atgcccactt	tcgtctcatt	840
gatccatgtg	tataccctat	agtttcctcc	ctaattactc	taattcccct	aaatcatttt	900
ttaatttgat	acaattagtc	ggataagctc	aaactacttt	actattggtg	cttagcatgt	960
acagtacata	tctagcatcc	gaaccctact	agccatccac	atcttatgta	cataattatg	1020
actgttttaa	gtactttttt	actttcgttt	acaatgtttg	tttgaaaatt	tgaggcgttt	1080
tttactggtt	gaactgtagc	cactaagaca	ctaagacttc	aaaattcaaa	taggaaaatc	1140
tatactttta	caatatcttt	gcatgtcaaa	ttatttttaa	cgtggttata	cattttgcct	1200
aagatttaga	gtacattcat	aataacaaca	ataaaatatt	tctatatata	gtaggtttag	1260
tgaagttact	atatgagata	gttcatcgca	ttgatcacgt	ctgatgcgaa	tcacatatcc	1320
tatatctagt	tgaacatatg	tttcgtggaa	gacaggaacc	atctcttaga	cccgcacttc	1380
aaaatatcac	aaaacacgaa	accatgaatc	ttttgagttt	gttaaaaaat	actaaaagtg	1440
acgagttcgc	gtttggaaaa	aatgccaaac	taaatcgctg	gctcgtgtca	tacgttcaca	1500
catacacatg	tctctaagag	acacagcatc	attggtctta	aatcgacaac	gagtgagttt	1560
ttggactttt	acctattggt	cctcgacatg	tttacccatt	tttgtcattt	acatttaaca	1620
ttttatacgc	atgaagagag	agagacagaa	agcagagatt	tgaaatggtt	tttgactgat	1680
taattaaagt	gtcatcaaaa	caaattggga	ttacgagatt	atccagttga	aacgacatta	1740
ctacccctac	ccttcaaacc	gaccaataca	tctccacatt	tttcaagtaa	atatttttc	1800
tttctgaatt	taattgcaaa	attctctaaa	tgcgcataat	atgtcgcctc	ggaagaaatg	1860
aacattatat	ttttgacttt	tcttctt	cttcctcttc	tctcttcatt	taacaccaaa	1920
acctttttct	ttctcctctt	catgcatgaa	ccctaactaa	gttctttttc	ctattcttct	1980
tctctcatct	atcacaagga	gtagttagaa	tattatatga	actcgatgaa	taactggtta	2040
ggcttctctc	tctctcctca	tgatcaaaat	catcaccgta	cggatgttga	ctcctccacc	2100
accagaaccg	ccgtagatgt	tgccggaggg	tactgttttg	atctggccgc	tccctccgat	2160
gaatcttctg	ccgttcaaac	atcttttctt	tctcctttcg	gtgtcaccct	cgaagctttc	2220

accagagaca	ataatagtca	ctcccgaggt	BABYBM.ST ttgtgtttta		ttttatcttt	2280
		ttcttccaat				2340
		attgtttatc				2400
_		catgatcaca				2460
		cccttttatc				2520
_	_	aacccaacgt				2580
		atgcaataca			,	2640
						2700
		caccaccacg				2760
		aggagacggt				2820
		tcattcggtt				
		ctctatgaat				2880
		agagaagact				2940
		acaaaggacg				3000
tcattgatct	atgtatattt	ttattgtgct	taaattgtga	ttttcttggt	attgtttggg	3060
acattctaat	ggttcggttg	agagagagtg	caacggaatg	tctctcaatg	tatattaaag	3120
agaaacatta	attagtgtac	atgggtttat	atatacaata	atacgtcata	tatatggtat	3180
gctcttgatc	atagtatata	atgtttgaat	ttaatgtcag	gcatcggtgg	acaggtagat	3240
acgaggcaca	tttatgggac	aatagttgca	aaagagaagg	ccagactcgc	aaaggaagac	3300
aaggtactat	atatataaag	ctaattttt	aattttcatt	taccatttat	tttcaaacta	3360
atttaggttt	tcttttcatg	tgtttcatca	aaatttgcac	ctgatggctc	tcttttcagt	3420
ttatctgggt	aagttcttga	ttttaagcta	taaattaata	atagatgact	attaaatcta	3480
ttctaagcaa	aatataattg	ttgtgttatc	tgatcctaca	ggaggttatg	acaaagaaga	3540
aaaagcagct	agggcttacg	atttagccgc	actaaagtat	tggggaccca	ccactactac	3600
taacttcccc	gtatgttaat	taatcaataa	tatatacata	aattcctaac	ttctaaccaa	3660
ttttagtctg	aataatgcca	atctcttaaa	ctagtattat	cttactatta	actgtcatgt	3720
ttatattgtt	acaataaaaa	ttagtaatgt	tggttggata	taatattcag	ttgagtgaat	3780
atgagaaaga	ggtagaagag	atgaagcaca	tgacgaggca	agagtatgtt	gcctctctgc	3840
gcaggtacag	aatgaaactc	ttgaatttat	tgcattttag	aaacccatca	cgtatatatt	3900
tattaaaata	tatcgtaaca	ttgaataaat	cattatttgg	aaagatataa	gaaacatgta	3960
aatatgcagg	aaaagtagtg	gtttctctcg	tggtgcatcg	atttatcgag	gagtaacaag	4020
gtacgtataa	tccatctaga	tatggaacga	atactagtgt	ttcattattt	tttttgatgt	4080
atacataata	attgtcatac	aatactatta	atctaatcta Page	attaatattt 15	cctttaaaat	4140

ggttccaaaa	ggcatcacca	acatggaagg	tggcaagcta	ggatcggaag	agtcgccggt	4200
aacaaagacc	tctacttggg	aactttcggt	acattttcca	ataaaatcta	tatactataa	4260
gatattaaat	atacacaaat	atatctaagt	gaatcataca	aattatgtag	gcacacagga	4320
agaggctgct	gaggcttatg	acattgcagc	cattaaattc	agaggattaa	gcgcagtgac	4380
taacttcgac	atgaacagat	acaatgttaa	agcaatcctc	gagagcccga	gtctacctat	4440
tggtagttct	gcgaaacgtc	tcaaggacgt	taacaatccg	gttccagcta	tgatgattag	4500
taataacgtt	tcagagagtg	caaataatgt	tagcggttgg	caaaacactg	cgtttcagca	4560
tcatcaggga	atggatttga	gcttattgca	gcaacagcag	gagaggtacg	ttggttatta	4620
caatggagga	aacttgtcta	ccgagagtac	tagggtttgt	ttcaaacaag	aggaggaaca	4680
acaacacttc	ttgagaaact	cgccgagtca	catgactaat	gttgatcatc	atagctcgac	4740
ctctgatgat	tctgttaccg	tttgtggaaa	tgttgttagt	tatggtggtt	atcaaggatt	4800
cgcaatccct	gttggaacat	cggttaatta	cgatcccttt	actgctgctg	agattgctta	4860
caacgcaaga	aatcattatt	actatgctca	gcatcagcaa	caacagcaga	ttcagcagtc	4920
gccgggagga	gattttccgg	tggcgatttc	gaataaccat	agctctaaca	tgtactttca	4980
cggggaaggt	ggtggagaag	gggctccaac	gttttcagtt	tggaacgaca	cttagaaaaa	5040
taagtaaaag	atcttttagt	tgtttgcttt	gtatgttgcg	aacagtttga	ttctgttttt	5100
ctttttcctt	tttttgggta	attttcttat	aactttttc	atagtttcga	t	5151

<210> 7

<211> 581

<212> PRT

<213> Arabidopsis thaliana

<400> 7

Met Asn Asn Trp Leu Gly Phe Ser Leu Ser Pro His Asp Gln Asn His His Arg Thr Asp 20 Val Asp Ser Ser Thr Thr Arg Thr Ala Val Asp Val Ala Gly Gly Tyr Cys Phe Asp Leu Ala Ala Pro Ser Asp Glu Ser Ser Ala Val Gln Thr Ser Phe Leu Ser Pro Phe Gly Val Thr Leu Glu Ala Phe Thr Arg Asp Asn Asn Ser His Ser Arg Asp Trp Asp Ile Asn Gly 80

BABYBM.ST25.txt Gly Ala Cys Asn Thr Leu Thr Asn Asn Glu Gln Asn Gly Pro Lys Leu 85 90 95 Glu Asn Phe Leu Gly Arg Thr Thr Thr Ile Tyr Asn Thr Asn Glu Thr $100 \hspace{1cm} 105 \hspace{1cm} 110$ Val Val Asp Gly Asn Gly Asp Cys Gly Gly Gly Asp Gly Gly Gly 115 120 125 Gly Ser Leu Gly Leu Ser Met Ile Lys Thr Trp Leu Ser Asn His Ser 130 135 140 Val Ala Asn Ala Asn His Gln Asp Asn Gly Asn Gly Ala Arg Gly Leu 145 150 155 160 Ser Leu Ser Met Asn Ser Ser Thr Ser Asp Ser Asn Asn Tyr Asn Asn 165 170 175Asn Asp Asp Val Val Gln Glu Lys Thr Ile Val Asp Val Val Glu Thr 180 185 190 Thr Pro Lys Lys Thr Ile Glu Ser Phe Gly Gln Arg Thr Ser Ile Tyr 195 200 205 Arg Gly Val Thr Arg His Arg Trp Thr Gly Arg Tyr Glu Ala His Leu 210 215 220 Trp Asp Asn Ser Cys Lys Arg Glu Gly Gln Thr Arg Lys Gly Arg Gln 225 230 235 240 Val Tyr Leu Gly Gly Tyr Asp Lys Glu Glu Lys Ala Ala Arg Ala Tyr 245 250 255 Asp Leu Ala Ala Leu Lys Tyr Trp Gly Pro Thr Thr Thr Asn Phe 260 265 270 Pro Leu Ser Glu Tyr Glu Lys Glu Val Glu Glu Met Lys His Met Thr 275 280 285 Arg Gln Glu Tyr Val Ala Ser Leu Arg Arg Lys Ser Ser Gly Phe Ser 290 295 300 Arg Gly Ala Ser Ile Tyr Arg Gly Val Thr Arg His His Gln His Gly 305 310 315 Arg Trp Gln Ala Arg Ile Gly Arg Val Ala Gly Asn Lys Asp Leu Tyr 325 330 335 Leu Gly Thr Phe Gly Thr Gln Glu Glu Ala Ala Glu Ala Tyr Asp Ile 340 345 350 Ala Ala Ile Lys Phe Arg Gly Leu Ser Ala Val Thr Asn Phe Asp Met 355 360 365 Asn Arg Tyr Asn Val Lys Ala Ile Leu Glu Ser Pro Ser Leu Pro Ile 370 380 Gly Ser Ser Ala Lys Arg Leu Lys Asp Val Asn Asn Pro Val Pro Ala 385 390 395 400

Met Met Ile Ser Asn Asn Val Ser Glu Ser Ala Asn Asn Val Ser Gly 405 410 415

```
BABYBM.ST25.txt
```

Trp Gln Asn Thr Ala Phe Gln His His Gln Gly Met Asp Leu Ser Leu 420 430

Leu Gln Gln Gln Glu Arg Tyr Val Gly Tyr Tyr Asn Gly Gly Asn 435 440 445

Leu Ser Thr Glu Ser Thr Arg Val Cys Phe Lys Gln Glu Glu Gln 450 460

Gln His Phe Leu Arg Asn Ser Pro Ser His Met Thr Asn Val Asp His 465 470 475 480

His Ser Ser Thr Ser Asp Asp Ser Val Thr Val Cys Gly Asn Val Val 485 490 495

Ser Tyr Gly Gly Tyr Gln Gly Phe Ala Ile Pro Val Gly Thr Ser Val 500 510

Asn Tyr Asp Pro Phe Thr Ala Ala Glu Ile Ala Tyr Asn Ala Arg Asn 515 520 525

His Tyr Tyr Ala Gln His Gln Gln Gln Gln Ile Gln Gln Ser 530 535 540

Pro Gly Gly Asp Phe Pro Val Ala Ile Ser Asn Asn His Ser Ser Asn 545 550 555 560

Met Tyr Phe His Gly Glu Gly Gly Glu Gly Ala Pro Thr Phe Ser 565 570 575

Val Trp Asn Asp Thr 580

<210> 8

<211> 30

<212> DNA

<213> Artificial

<220>

<223> Primer

<400> 8

gaggcagcgg tcggatcgta acagtactct

<210> 9

<211> 30

<212> DNA

<213> Artificial

<220>

30

<223>	Primer	
<400> cataag	9 gaga gagagaaaag cctaaccagt	30
<210>	10	
<211>	19	
<212>	DNA	
<213>	Artificial	
<220>		
<223>	Primer	
<400>	10 aact cgttagatc	19
accaag	auce egetugute	13
<210>	11	
<211>	20	
<212>	DNA	
<213>	Artificial	
<220>		
<223>	Primer	
<400> aacgca	11 tata actaaagatc	20
<210>	12	
<211>	26	
<212>	DNA	
<213>	Artificial	
<220>		
<223>	Primer	
<400> ccatgga	12 atcc agagacgaag cgaaac	26
<210>	13	
<211>	26	

Page 19

26

<212>	DNA		
<213>	Artificial		
<2 <u>2</u> 0>			
<223>	Primer		
<400> actcca	13 tgga taataactgg ttaggc	2	26
<210>	14		
<211>	26		
<212>	DNA		
<213>	Artificial		
<220>			
<223>	Primer		

<400> 14 aaattctcaa gctttggtcc atcttg